

What is claimed is:

- 1 1. A wireless communications device for receiving and sending incoming and outgoing
2 transmissions, said transmissions including digitally-encoded data and error-correcting coding
3 for the digitally-encoded data, comprising:
4 a receiver operable to receive the incoming transmissions;
5 a transmitter operable to send the outgoing transmissions over a first transmission range;
6 and
7 an error-correcting coding mechanism operable to vary a level of the error-correcting
8 coding applied to the digitally-encoded data within the outgoing transmissions, such that the first
9 transmission range is effectively increased up to a maximum transmission range corresponding
10 to a maximum level of error-correcting coding.
- 1 2. The wireless communications device of claim 1, wherein the error-correcting coding
2 mechanism is additionally operable to decode varying levels of error-correcting coding applied
3 to the incoming transmissions.
- 1 3. The wireless communications device of claim 1, wherein a first portion of the outgoing
2 transmissions contains information to notify the second wireless communications device that a
3 remaining portion of the outgoing transmissions have an increased level of error-correcting
4 coding.
- 1 4. The wireless communications device of claim 3, wherein a first portion of the incoming
2 transmissions contain information to notify the wireless communications device that a remaining
3 portion of the incoming transmission has an increased level of error-correcting coding.
- 1 5. The wireless communications device of claim 1, wherein the error-correcting coding
2 mechanism is activated when the receiver does not receive an anticipated incoming reply
3 transmission from the second wireless communications device.

1 6. The wireless communications device of claim 1, wherein the wireless communications
2 device and the second wireless communications device implement the Bluetooth specification
3 for transmitting and receiving data.

1 7. The wireless communications device of claim 6, wherein an access code portion of
2 outgoing transmissions sent by the wireless communications device is reserved to notify the
3 second wireless communications device that the outgoing transmissions have an increased level
4 of error-correcting coding.

1 8. The wireless communications device of claim 7, wherein the reserved access code
2 portion is a reserved dedicated inquiry access code.

1 9. The wireless communications device of claim 8, wherein the digitally encoded data
2 comprises a digitally-encoded data packet including an access code portion, a header portion and
3 a payload portion.

1 10. The wireless communications device of claim 9, wherein the error-correcting coding
2 mechanism is activated when the second wireless communications device is outside the first
3 transmission range, such that the data packet is re-encoded, prefixed with the reserved dedicated
4 inquiry access code and re-sent with a pre-determined increase in error-correcting coding.

1 11. The wireless communications device of claim 10, wherein the reserved dedicated inquiry
2 access code contains information indicating a level of the pre-determined increase in error-
3 correcting coding.

1 12. A method for sending a transmission from a wireless device, the method comprising:
2 detecting that a recipient device is outside of a transmission range of the wireless device;
3 encoding digital data to be transmitted using enhanced error-correcting coding beyond a
4 standard level of error-correcting coding;
5 notifying the recipient device that following data will contain enhanced error-correcting
6 coding; and

7 sending the encoded digital data.

1 13. The method of claim 12, said detecting whether a recipient device is outside of a
2 transmission range of the wireless device further comprising:
3 failing to detect a reply transmission from the recipient device.

1 14. The method of claim 12, said detecting that a recipient device is outside of a transmission
2 range of the wireless device further comprising:
3 detecting a drop in signal strength in a reply transmission from the recipient device as the
4 recipient device and the wireless device move relative to one another.

1 15. The method of claim 12, said encoding data to be transmitted using enhanced error-
2 correcting coding beyond a standard level of error-correcting coding further comprising:
3 re-encoding previously-sent data using the enhanced error-correcting coding.

1 16. The method of claim 15, said notifying the recipient device that following data will
2 contain enhanced error-correcting coding further comprising:
3 reserving an access code portion of the transmission for the notification of enhanced
4 error-correcting coding.

1 17. The method of claim 16, wherein the access code portion is a dedicated inquiry access
2 code portion.

1 18. The method of claim 17, said notifying the recipient device that following data will
2 contain enhanced error-correcting coding further comprising:
3 prefixing the re-encoded previously-sent data with the reserved dedicated inquiry access
4 code portion.

1 19. The method of claim 12, said detecting that a recipient device is outside of a transmission
2 range of the wireless device further comprising:

3 searching for a third wireless device that is available to serve as a forwarding device for
4 forwarding the transmission from the wireless device to the recipient wireless device.

1 20. The method of claim 12, further comprising:
2 searching for a second device operable to continue receiving communications from the
3 recipient device; and
4 transferring communications from the recipient device to the second device.

1 21. An article of manufacture, which comprises a computer readable medium having stored
2 therein a computer program carrying out a method for sending a transmission from a wireless
3 device, the computer program comprising:

4 a first code segment for encoding, in response to an indication that a recipient device has
5 been detected to be outside of a transmission range of the wireless device, a message using
6 enhanced error-correcting coding beyond a predefined standard level of encoding, to thereby
7 effectively increase the transmission range of the wireless device; and

8 a second code segment for generating a notification for transmission to the recipient
9 device that the message will contain enhanced error-correcting coding.

1 22. The article of manufacture of claim 21, wherein the message is a data packet comprising
2 an access code portion, a header portion and a payload portion.

1 23. The article of manufacture of claim 22, wherein a dedicated inquiry access code portion
2 is appended to a beginning portion of the access code portion.

1 24. The article of manufacture of claim 23, wherein the dedicated inquiry access code portion
2 contains the notification generated by the second code segment.

1 25. The article of manufacture of claim 24, wherein a user of the wireless device is notified
2 of a use of the first and second code segments during their operation.

- 1 26. The article of manufacture of claim 21, wherein the wireless device, including the first
2 and second code segments, operate according to the Bluetooth specification.
- 1 27. A method for extending a transmission range of a wireless device, the method
2 comprising:
3 encoding data using a first error correction code when the wireless device is within a first
4 transmission range of a recipient device;
5 detecting that the wireless device is outside said first transmission range; and
6 encoding messages using a second error correction code when the wireless device is
7 outside said first transmission range.
- 1 28. The method of claim 27, wherein said second error correction code provides greater error
2 correction capacity than said first error correction code.
- 1 29. The method of claim 27, wherein the wireless device implements the Bluetooth
2 specification, and further wherein a dedicated inquiry access code portion of transmitted data is
3 reserved to identify the recipient device and notify the recipient device of the second error
4 correction code when it is utilized by the wireless device.
- 1 30. A wireless communications system, comprising:
2 a first wireless device having a first transmission range and a first error-correcting coding
3 means; and
4 a second wireless device having a second transmission range,
5 wherein, when the first wireless device moves outside of the first transmission range
6 relative to the second wireless device, the first error-correcting coding means increases the first
7 transmission range by increasing the level of error-correcting coding applied to transmissions
8 sent from the first wireless device to the second wireless device.
- 1 31. The wireless communications system of claim 30, wherein at least some transmissions
2 within the system are sent and received according to the Bluetooth specification.

1 32. The wireless communications system of claim 31, wherein a user of the first wireless
2 device is notified of the increased level of error-correcting coding, whereby the user may choose
3 to end the transmission using the increased level of error-correcting coding or move back into the
4 first transmission range.

1 33. The wireless communications system of claim 31, wherein the wireless communications
2 device and the second wireless communications device are part of a wireless network of
3 communications devices, at least some of which are portable, and further wherein the increased
4 effective transmission range is temporarily utilized when the wireless communications device
5 exceeds the first transmission range, in order to maintain contact between the two wireless
6 communications devices until one of the remaining network devices can begin to forward data
7 between the two wireless communication devices.